

Towards a typology of pain predicates¹

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Abstract

The semantic domain of pain seems to be unique in that, crosslinguistically, it includes few predicates that are specifically dedicated to pain (like hurt or ache); instead, the major part of the field is constituted by lexical units drawn from other semantic domains, which are applied to pain through processes of semantic derivation (like my eyes are burning, my throat is scratching). After discussing methodological considerations concerning data collection, the article first analyzes the semantic sources for pain predicates and addresses the issue of their typological consistency, based on data from over 20 languages. It is then demonstrated that the evolution of a pain meaning cannot be reduced to a merely semantic process, since the meaning shift may be accompanied by changes in the morphological, morphosyntactic and/or syntactic properties of the source verb. We suggest the term “re-branding” for the complex meaning changes of this kind and discuss their theoretical relation to the well-established notions of metaphor and metonymy.

1. Introduction

Pain is considered to be a uniquely complex domain of human experience. Its ontological specificity is due to the fact that pain is highly subjective and private, i.e., no one can directly access the pain sensations felt by others (cf. the classical work by L. Wittgenstein 1953). This means that the only way to share one’s pain experience is to verbalize it. The importance of language description in the pain domain is evidenced even by the official definition given by the International Association for the Study of Pain (IASP), according to which *pain* is “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or *described* in terms of such damage” [emphasis ours]. Although there are other nonobservable spheres of human experience (such as emotions or mental processes), pain remains unique since its verbalization is of

crucial importance for human well-being as substantially contributing to healing. Obviously, pain reports are usually aimed at its relief. The more precisely pain is determined, the better it can be diagnosed, and, consequently, the more successfully it can be treated. This implies that a natural language needs to have means for describing and differentiating a great variety of painful sensations. And indeed, languages of the world exhibit highly elaborated systems of pain expressions. These systems require a consistent semantic analysis both for the sake of medical diagnostics and for the linguistic purpose of detecting the cognitive parameters that are relevant for the domain in question. The task of the present study is to reveal and classify these parameters, as well as to prove their typological relevance in a language sample that is as large as possible.

The peculiarity of the semantic field in question lies in the fact that languages normally have few lexemes specifically dedicated to pain, i.e., *primary* pain terms (cf. Fabrega and Tyma 1976). Thus, in the languages studied so far we have encountered among predicative units from one to four pain-specific verbs, cf. English *hurt*, *ache*, *pain* (as a verb); German *schmerzen*, *weh tun*; Russian *bolet'*, Chinese *tòng*, *téng*, Aghul *iīaa*, *ʒur aq'as*. For some languages, such as English, Greek, German and Thai, these verbs have been thoroughly investigated (see Halliday 1998; Nicholls 2003; Rudnitskaya and Novichkov 2010; Lascaratou and Marmaridou 2005; Marmaridou 2006; Lascaratou 2007, 2008; Kövecses 2008; Overlach 2008; Patharakorn 2010). What seems to have attracted less attention of researchers on pain language is that the major part of the pain domain is constituted by lexical units drawn from other semantic fields, which are applied to pain through the process of semantic derivation (traditionally viewed as metaphor),² i.e., *secondary* pain terms. Thus, rich systems reveal up to 50 “metaphoric” pain verbs, or deverbal predicates. Examples of the former include: English *my eyes are burning*, *my throat is scratching*; German *mein Kopf brummt* lit. ‘my head buzzes’, *meine Augen beißen* lit. ‘my eyes bite’; Russian *nogi gudjat* lit. ‘legs hoot’, *serdce noet* lit. ‘heart whimpers’;³ Chinese *yāobù cìtòng* lit. ‘side pricks’, *dùzi jiào* lit. ‘stomach screams’; Aghul *ze jurk' č'iī.inaa*, lit. ‘my heart is pressed’, *ze k'il čurq.aa* lit. ‘my head bursts’. Examples of deverbal predicates, i.e., composite predicates of the form ‘light verb + deverbal noun/deverbal adjective (modifying a body part term or a noun referring to pain)’, include: French *j'ai des gargouillis dans le ventre* lit. ‘I have gurgling in the stomach’, Polish *mam rozpalone gardło* lit. ‘I have the throat fired up’, *húzó fájdalmat érzek a lábamban* lit. ‘I feel pulling pain in my legs’. For similar examples from other languages, see Section 3 below.

In our study we mainly address these secondary pain terms. This paper presents the results of the first stage of a project (2006–2009) covering data from over twenty different languages, including Russian, Ukrainian, Bulgarian, Serbian, Polish, Czech, Lithuanian, English, German, French, Spanish, Hindi, Arabic, Japanese, Chinese, Aghul, Georgian, Balkar, Crimean Tatar, Erzya,

Estonian and Hungarian (see Britsyn et al. 2009). The sample is constantly growing. Work on Finnish, Komi, Korean, Vietnamese and Dan-Gweetaa has already been launched.

As the language list shows, we have included in our sample both genetically close languages (like Russian–Ukrainian, Polish–Czech, French–Spanish, and others) and genetically diverse languages (like Aghul, Dan-Gweetaa, and Arabic). Traditionally, grammatical typology excludes close relationships in the sample, requiring it to consist of languages from different genetic groups, cf. Bybee et al. (1994) (though this position is questioned in Kibrik 1998). However, for the task of lexical comparison (i.e., lexical typology) the degree of genetic affinity between languages is of minor importance (see Rakhilina and Plungian 2007).

Note that crosslinguistic analysis of the lexicon is much more time-consuming than that of grammatical meanings. The latter normally relies on existing grammars, and therefore can operate with samples consisting of over 200 (Corbett 1991, 2000) and even 400 (Maisak 2005) or 500 languages (Aikhenvald 2004). For lexical typology, which involves manual collection of data, this amount of languages can hardly be reached. In order to make a project feasible, a lexical typologist has to restrict his or her sample to 30–50 languages. Moreover, the choice of languages depends a lot on practical matters such as the availability of resources (reliable dictionaries, large corpora, native speakers, and so on). In view of this, the sample cannot be compiled according to purely theoretical principles, cf. samples that are used in on-going and finished lexical typological projects based on a broad range of linguistic data: CUTTING and BREAKING (Majid and Bowerman 2007) as well as other research by the Language and Cognition Group at the Max-Planck Institute, Nijmegen; TEMPERATURE TERMS (Koptjevskaja-Tamm 2007); AQUA-MOTION (Maisak and Rakhilina 2007).

The next stage of our study will aim at the construction of a database, which would allow us to reveal and query the relevant parameters of linguistic variation within the pain domain (see Bonch-Osmolovskaya et al. 2009).

In the present paper, after summing up the analysis carried out so far, we will focus on the processes of semantic derivation which leads to the emergence of pain predicates. We are mainly interested in the following questions:

- What are the semantic sources for pain predicates? Are they consistent among languages (see Section 3)?
- Is a semantic shift from the physical domain to the physiological one accompanied by any changes in the morphological, morphosyntactic or syntactic properties of the source verb (see Sections 4 and 5)?
- Can a meaning shift to the pain domain be properly considered as a regular metaphor (as it is normally treated), and if not, how can this shift be categorized with reference to the standard theory of semantic change

(as presented in Ullman 1957, 1962; Blank 1997; cf. also Lakoff and Johnson 1980; Peirsman and Geeraerts 2006a) (see Section 6)?

Thus, the tasks of our study differ radically not only from those researches that deal with primary pain verbs, but even from those which do consider pain metaphors (see endnote 2). In particular, the works Lascaratou and Marmaridou (2005); Lascaratou (2007) focus on metaphoric expressions which involve the Greek noun *ponos* ‘pain’ in subject and object position, whereas we analyze constructions where secondary pain terms substitute for primary ones. Such constructions in German are touched upon in Overlach (2008), but they do not constitute the bulk of that research. By contrast, we are mostly concerned with secondary pain terms. We are interested in finding a semantic foundation for their use in pain constructions, as well as in examining processes that accompany their evolution into pain predicates at all levels of linguistic structure (morphology, syntax, etc.) and revealing universals that hold within these processes.

Our research questions anticipate the likelihood that semantic shifts to the pain domain involve changes at various levels of linguistic representation. This corresponds to a basic tenet of the Construction Grammar theory (see Fillmore et al. 1988; Goldberg 1995, 2006; Fried and Östman 2004; Fried and Boas 2005, and many others), according to which the meaning of a word is always associated with a certain construction, and therefore a change in lexical meaning goes together with changes at the construction level, in particular, with changes in its grammatical features. Hence, the analysis proposed in the paper is based on the framework of the Construction Grammar theory.

Before we proceed with the analysis of pain predicates, we will highlight some methodological aspects of our research in Section 2.

2. Data collection and methodology

Over recent years some experience has been gained in relation to data collection (for more details, see Koptjevskaja-Tamm 2008; Rakhilina and Plungian 2007). One of the best-known methodologies, which is in particular used by the Language and Cognition research group at the Max-Planck Institute in Nijmegen, could be called a “psycholinguistic approach”. Following this methodology, typologists rely on verbal reactions to visual or other sensory perception (cf. video clips representing different kinds of object destruction for the analysis of verbs of cutting and breaking, see Majid and Bowerman 2007, or taste and smell specimens for the study of sensory modalities). Going back to the tradition of color terms description in a typological perspective (Berlin and Kay 1969; MacLaury 1991, 1997, and many others), this method assumes that the informants (native speakers of different languages) verbalize and categorize extralinguistic stimuli according to the world view of their language.

Yet, the “psycholinguistic approach” is in no way applicable to the pain domain. Even if we could imagine such an unlikely situation as that of a linguistic experiment in which a cruel-hearted researcher pricked his informants with a needle or burned them with a candle and then wrote down their verbal reactions to the induced damage, it would be impossible to obtain any consistent results, since first, all individuals experience pain differently, and second, externally caused pain is only a subclass of the complete range of painful sensations.

Hence, language-internal methods are the only recourse for pain language investigation, i.e., pain researchers can rely only on purely linguistic data, such as the combinability of words and constructions and the restrictions on their usage.

Working on pain language within the usage-based approach, we have to define precisely the object of our study. Meaning extensions can be described following two alternative lines of research: one can either focus on the ways spontaneous metaphors or metonymies are created in discourse or explore conventionalized phrases which have already lost (or nearly lost) the direct connection with their source domains. Most research on pain terms is performed along the first line (cf. Lascaratou 2007; Overlach 2008); therefore they appeal to spontaneous dialogues from doctor-patient communication and similar types of discourse. But for the task of systematic lexical comparison that we are pursuing in the current study, only the second line is appropriate, and it suggests other sources of language data.

Specifically, data on conventionalized meaning extensions is represented in dictionaries, and in general corpora, and it can also be obtained with the help of questionnaires. This methodology of data extraction has proven its efficacy in the Aquamotion project, see Maisak and Rakhilina (2007). For a pain study, however, the use of each of these data sources (dictionaries, corpora, and questionnaires) faces additional complications. Taken alone, none of the sources is sufficient. Below we discuss each of them in turn in more detail:

- (i) Pain predicates originate from diverse semantic domains, and the lexical source of a pain predicate mostly preserves its initial meaning as statistically much more prominent. Consequently, derived pain meanings are poorly represented in dictionaries. The only way out here is to supplement information extracted from dictionaries by corpus data.
- (ii) Corpus searching for metaphorical extensions is problematic as well, because derived meanings usually form only a small part of the query result. For example, 100 random occurrences of the German verb *brennen* ‘to burn’ in the DWDS Corpus⁴ provided only 3 pain uses. The search for secondary pain verbs could be facilitated if a corpus could account for the argument structure of a verb, as is the case with the Czech National Corpus, or if a corpus is semantically annotated, as the Russian National Corpus, but resources of this kind are relatively

rare. Thus, as a rule, the search for pain-related uses of the predicates under discussion is a manual and time-consuming task.

This fact is not at all surprising, given that normally, general, i.e., nonspecialized, corpora represent standard language and standard topics like fiction, politics, sport, and so on. The subject of pain does not often appear in these texts. Besides, being subjective, painful sensations are normally reported by the experiencer himself, i.e., from the first person perspective. Again, ego narratives do not constitute a significant part of a standard corpus. Hence, in order to extend our data, we have made use of medical internet sites and forums, where people describe their pain in the hope of getting help.

Another difficulty about the corpus (and especially internet texts) is that the data extracted from it cannot be accepted without additional examination. Actually, the sole reliable information concerning a lexical unit that a corpus can provide is its statistical characteristics. Judgments on acceptability of word combinations may be only indirectly deduced from these data. For derived meanings, as in the case of secondary pain verbs, a corpus turns to be even less helpful. Among frequently occurring expressions we find only those that are lexicalized or phraseologized. All other combinations need to be checked with native speakers in order to determine whether they are a conventionalized way of pain description or rather individual metaphors.

Taking all this into account, corpus data necessarily have to be supported by field work.

- (iii) Field work in the pain domain is also a hard task. Commonly, field work is based on questionnaires, which rely on a classification of situations that are typical for the semantic domain under examination. However, if we are dealing with derived meanings we cannot create an a priori classification of their metaphorical sources. The only way to uncover these sources is to address the intuition of an informant. But here again we come across the subjectivity of pain. If the informant has no experience with a certain kind of pain, the corresponding expressions may not come to his mind without special stimulation. For this reason we developed a whole set of questionnaires which are intended to trigger lexical retrieval processes in informants. The set included:
- a body parts questionnaire, giving a list of body parts and asking the informant to enumerate types of pain that could be associated with each of them. E.g., the informant is asked how one usually describes pain in one's head, in one's side, etc.
 - a metaphorical sources questionnaire, relying on a list of prototypical sources for secondary pain verbs obtained from a pilot crosslinguistic study. Thus, in a number of languages pain verbs

are metaphorically derived from verbs of burning, so the questionnaire contains queries concerning the use of the latter in the pain domain, cf. “How to say ‘burn’ in your language? Which verbs could you use to refer to burning fire / wood / light, etc. Is it possible to apply one of these verbs when speaking about pain or an unpleasant sensation in a certain body part, e.g., *My eyes are burning*, *My stomach is burning*, etc”.

- a situational questionnaire, comprising a set of stimulus situations that lead to painful sensations of their participant; e.g., “The person was bound for two hours. What did he feel while being in such a state? What did he feel after he was unbound? What sensations did he get in his head, chest, back, arms, hands?”
- a frame questionnaire, reflecting the preliminary classification of functional physical violation types that lead to pain sensations (skin sensations, inner sensations, etc.). The subtypes of each type are distinguished, first, by differences of stimuli (e.g., bright light, fever, fatigue), and second, by difference in the affected body parts. For instance, the type “Skin and mucosa sensations” has the subclass “Sensations caused by an external affect”, which is further subdivided as represented in the extract below:

Sensations caused by an external affect

A. outer contact impact

- shampoo / soap / salt water (affected body parts: eyes, a wound on a body part)
- nettle (affected body parts: hands, skin)
- stings and bites, cf. by a mosquito, a bee, a snake, a jelly-fish (affected body parts: skin)
- pin needles / dried grass (affected body-parts: feet)
- wool clothes (affected body-parts: back, neck, etc.)
- ...

B. outer aerial impact

- onions, pepper (affected body parts: eyes, nose)
- smoke, dust (affected body parts: eyes, nose, throat)
- ...

C. inner contact impact

- fizzy drinks (affected body parts: tongue, mouth, throat, nose)
- spicy food (affected body parts: tongue, mouth, throat)
- sour food (affected body parts: tongue, mouth)
- ...

D. temperature impact

- low nontactile (affected body parts: face, nose, cheeks, ears, hands, feet)
- low tactile (affected body parts: fingers)
- high nontactile (affected body parts: head, back, shoulders, face, nose, skin)
- high tactile (affected body parts: fingers, hand, skin)

Figure 1. *Frame questionnaire (a fragment)*

The questionnaires were applied to several informants from each language (if available), and then the data obtained from different informants were checked against each other. In this way we tried to counter the inevitable subjectivity of informants, which is particularly problematic in the case of semantic shifts, since the latter always favor linguistic variation. The result of a particular semantic derivation may seem widely used to some native speakers, but non-acceptable to others.

Native speakers were also asked to evaluate the data retrieved from dictionaries and texts. That is to say, for each example in our data we tried to acquire as much independent evidence as possible (except for exotic and remote languages, for which this was impossible for practical reasons).

Thus, the results presented below are based on the data obtained from dictionaries, corpora analysis, and relevant internet sites, as well as retrieved with the help of the questionnaires, and then confirmed by native speakers.⁵

3. Source fields for pain predicates: lexicon and taxonomy

3.1. *Introductory remarks*

Since pain is subjective by nature, it is difficult to distinguish between pain and other unpleasant sensations. In order to avoid arbitrary decisions in this respect, we considered all kinds of unpleasant sensations related to the human body as a matter of our interest. It turned out, however, that natural language does differentiate between two domains within this broadly defined zone, which at first sight seems to be indivisible. These domains are that of painful or unpleasant sensations *per se* (cf. the sensation of burning in the eyes caused by soap) and that of sensations which we call “loss of functionality” effects (like the sensation of one’s mouth being frozen after anesthesia, cf. also *my ears are blocked*, *my leg fell asleep*). The opposition between the two is clearly seen in the lexical sources for the corresponding predicates. Generally, the results of our analyses show that crosslinguistically, there are a limited number of source fields that can be used for the domain of unpleasant bodily sensations. Interestingly, predicates of painful sensations *per se* and those of functionality loss come from different source fields. In what follows we provide a general overview of source domains.

The main sources for secondary verbs of painful sensations *per se* form four groups: burning, destruction or deformation, sounds, and motion. Note that some of these metaphorical domains give rise to attributes that are used as means for medical pain differentiation in the McGill Pain Questionnaire (MPQ, see Melzack 1975), cf. burning / stabbing / pricking / jumping pain, etc. Interestingly, there are some crucial gaps in the MPQ as compared to our list of

source domains, e.g., sounds. Sound verbs are not encountered in the Greek examples treated in Lascaratou (2007) either. Though her approach does not aim at cataloguing all the metaphoric domains for pain expressions in Greek, her list of metaphors on p. 163–164 includes patterns fitting well into most of the source domains that we identified on the basis of our sample, cf. burning (PAIN IS FIRE / HEAT) and destruction or deformation (PAIN IS A NEEDLE, PAIN IS A SWORD / DAGGER / SHARP OBJECT, PAIN IS A STING, PAIN IS [A] SHARP POINT[S], PAIN IS SLAUGHTERER'S KNIFE), whereas some other examples refer to the motion domain, cf. also Lascaratou and Marmaridou (2005); Marmaridou (2006); Kövecses (2008).

Brief illustrations showing the use of the main sources for secondary pain verbs in different languages can be found below (see Sections 3.2–3.5). In 3.6 we discuss the typological relevance of these sources. Section 3.7 is devoted to regularities in the domain of functionality loss and its specificity, as compared to pain *per se*.

3.2. *Burning*

Group 1 contains verbs with the common meaning of BURNING. According to the gathered data, pain predicates originating from this taxonomic field most frequently have the general meaning of ‘burn’, describing a prototypical event of a burning fire or wood burning in it. Such verbs develop a meaning from the domain of unpleasant sensations in at least 20 of the 22 languages studied, cf. (1):

(1) Arabic

fa qad 'aḥassa bi=ḡabhat-i=hi
and PST feel(PRF) in=forehead-GEN=3SG.M.POSS
taltahib-u
burn(IMPF)-IND
‘He felt that his forehead was burning’ (in case of fever)⁶

However, some verbs which express more specific types of heating or burning can also be used to describe painful sensations. These are, for example, ‘smoulder’ (i.e., burn without flame, and often with much smoke, cf. Estonian *hõõguma*, Serbian *tinjati*), ‘incandesce’ (i.e., be white, glowing, or luminous with intense heat, cf. Georgian *gaxureba*, German *glühen*), ‘boil’ (cf. Crimean Tatar *qajnamak*), etc.

(2) Serbian

zub tinj-a
tooth.NOM smoulder.IPFV-3SG.PRS
(background toothache of relatively low intensity)

- (3) Georgian
tav-i m-i-xur-s
 head-NOM 1SG.OBJ-VRS-incandesce-3SG.SBJ.PRS
 (unpleasant sensation which is due to fever or heat)
- (4) Crimean Tatar
miy-im-de qayna-y
 brain-1SG.POSS-LOC boil-3SG.PRS
 (headache which is due to mental tension)

3.3. *Destruction and deformation*

Group 2 features verbs with the common meaning of object destruction or deformation. This group can be arranged into the following taxonomic classes:

- An impact with an instrument (such as a needle, knife, axe, drill), cf. verbs meaning ‘prick’, ‘cut’, ‘stab’, etc.:
- (5) Spanish
me pica-ba-n los ojo-s
 I.DAT prick-DUR.PST-3PL DEF.M.PL eye-PL
 (e.g., in case of soap got into one’s eyes)
- (6) Erzya (Mordvin)
p’il’e-t’e salg-s’
 ear-DEF pierce-3SG.PST
 (a general situation of ear pain)
- (7) Hindi
mūh kaT rahā hai
 mouth cut AUX(PRS.PROG)
 (as a physiological reaction to spicy food)
- An impact with a “sharp” body part (such as teeth, claws, nails, sting) which could be treated as a quasi-instrument, cf. verbs meaning ‘bite’, ‘gnaw’, ‘sting’, ‘scratch’, etc.:
- (8) German
es kratz-t im Hals
 it scratch-3SG.PRS in.DEF.DAT.M throat
 (e.g., as a reaction to smoke)
- (9) Serbian
luk ugriz-e za oči
 onion.NOM gnaw-3SG.PRS PREP eye.ACC.PL
 (unpleasant sensation in one’s eyes caused by onion)

- An impact with bare hands which opposes two types of effect depending on the result of the deformation:
 - breaking of an object into pieces, cf. verbs meaning ‘break’, ‘tear’, etc.:
- (10) Georgian
saxsr-eb-ši m-t'ex-av-s
 joint-PL-LOC 1SG.OBJ-break-PSF-3SG.SBJ.PRS
 (rheumatic pain)
- (11) Erzya
pr'e-s' aj s'iz'te šum-te-nde
 head-DEF.NOM IPFV tear.3SG.PRS noise-DEF-PART
 (headache caused by noise)
 - “soft” deformation, i.e., the object is not ruined, but may change its form, cf. verbs meaning ‘press’, ‘pull’, etc.:
- (12) Russian
plašč žme-t pod myšk-ami
 raincoat.NOM press.IPFV-3SG.PRS under armpit-OBL.PL
 (unpleasant sensation caused by too small clothes)
- (13) Hungarian
húz a hát-am
 pull.3SG.PRS DEF back-1SG.POSS
 (back pain, e.g., during pregnancy)
 - Self-destruction of the object.
- (14) Bulgarian
puk-a mi se glava-ta
 burst-3SG.PRS I.DAT REFL head-DEF
 (headache caused e.g., by intensive mental activity)
- (15) Aghul
fun čurq.a-a
 stomach burst-PRS
 (stomach pain after having eaten too much)

3.4. Sound

Group 3 is comprised of verbs of SOUND. Typologically, the spectrum of sound verbs that can be employed in the semantic field of pain is quite diverse. Here we encounter sounds produced by animals, birds, insects (like ‘growl’, ‘chirp’, ‘buzz’, ‘hum’), human sounds (like ‘whimper’, ‘whistle’), sounds of

nature (e.g., those of wind or water), sounds from tools or instruments (i.e., artefactual sounds like those of bells, musical instruments, etc.). In the pain domain, sound verbs mostly refer to sensations in one's ears or head, cf. English *My ears are ringing/buzzing; My head is ringing/buzzing*. If applied to the ears, these verbs usually denote sensations associated with tinnitus or high blood pressure, cf.:

- (16) Polish
dzwon-i mi w usz-ach
ring.IPFV-3SG.PRS I.DAT in ear-LOC.PL
- (17) French
j'ai des bourdonnement-s dans les
I have.1SG.PRS INDF.PL humming-PL in DEF.PL
oreille-s
ear-PL
- (18) Hungarian
sípól a fül-em
whistle.3SG.PRS DEF ear-1SG.POSS
- (19) Chinese
tīng MP3 huì yīnqǐ ěr-míng
listen MP3 may cause ear-chirp
'Listening to MP3 may cause tinnitus'.

When co-occurring with the word 'head', sound verbs may refer to headaches associated with various causes, in particular with stress, alcohol or exposure to loud noise.

- (20) Serbian
mi svir-a u glav-i
I.DAT play.musical.instrument.IPFV-3SG.PRS in head-LOC
- (21) German
Mein Kopf brumm-t. Ich
1SG.POSS.NOM.M head buzz-3SG.PRS I
hab-e einen Kater.
have.PRS-1SG.PRS INDF.ACC.M hangover

Other body parts are crosslinguistically less common in pain constructions with sound verbs. Consider examples featuring legs and teeth:

- (22) Crimean Tatar
bolduriv-dan ayaq-lar-im uvulda-y
weariness-ABL leg-PL-1SG.POSS(NOM) hoot-3SG.PRS
(sensation of tired legs)

- (23) Hindi
dāⁿt pinpinā rahā hai
 tooth whimper AUX(PRS.PROG)
 (toothache of low intensity)

3.5. Motion

Group 4 incorporates verbs of MOTION (both self-propelled and causative motion). Here, the semantic field of pain most often employs verbs with the meaning of circular movement, cf. English *My stomach is churning* and Examples (24–25):

- (24) Ukrainian
v n'ogo dekoli nog-i kruti-t'
 PREP he.OBL sometimes leg-ACC.PL twist.IPFV-3SG.PRS
 (e.g., as a reaction to weather changes)
- (25) Balkar
karn-ym bura-dy
 stomach-1SG.POSS twist-PST
 (e.g., when one has eaten something bad)

Interestingly, together with verbs of circular movement, the field of pain exploits predicates that have the literal meaning of a repeated motion on the same spot, which are indeed very close to rotation, cf. verbs with the meanings 'sway', 'jump':

- (26) Japanese
futsuka-yoi de atama ga guragura suru
 hangover because.of head NOM swaying do
 (spinning sensation in the head)
- (27) Hindi
peT kūd rahā hai
 stomach jump AUX(PRS.PROG)
 (sensation of hunger)

3.6. Towards a crosslinguistic analysis of pain verb sources

Though this classification covers nearly all the examples encountered in our data, it still needs further elaboration both for those languages which have already been examined and for those which we plan to include in our sample. We strongly believe that the classes described so far are typologically relevant, but some new classes are likely to be identified in the course of the project development. As an illustration, let us consider the following constructions from English and Aghul:

- (28) English
 a. *My stomach is upset*
 b. *My stomach is **unhappy***
- (29) Aghul
ze k'il dallu xunaa
 1SG.POSS head become crazy
 (strong headache)

These examples represent the domain of negative emotions. For the moment, we have too few examples of this kind to set up a separate class, but by extending our sample we hope to get new evidence for its validity.

The next stage of the project will aim at the development of a detailed database describing pain predicates with respect to their lexical sources, as well as their potential uses in pain domain. The database will allow for further generalizations, for example, on the statistical distribution of sources among languages or the correlations between classes of pain sources and types of pain sensation. But even now we can claim, first, that the distribution of sources is not homogeneous through the sample, i.e., the source domains are not equally elaborated in the different languages. Thus, for example, verbs of burning get a pain interpretation in practically all the researched languages, whereas sound verbs engage in pain metaphorization much less so. Second, certain correlations between the classes of pain sources and types of derived pain meaning can already be identified. For instance, verbs of burning tend to refer either to unpleasant skin and mucosa sensations (caused by external stimuli, e.g., spicy food, skin and eyes irritants such as soap, shampoo) or to fever and inflammation. Verbs of instrumental destruction denote internal pain, unlike verbs of quasi-instrumental impact which correlate mostly with skin sensations. Predictably, verbs of instrumental destruction denote a more intensive pain than those referring to soft deformation.

Further, the database will reveal the connection between different pain sensations and affected body parts. Our data clearly indicate that most secondary pain verbs can function only with respect to a limited set of body parts. Therefore a crucial parameter for pain verbs comparison, both within and across languages, is their compatibility with different body parts. The compatibility constraints can be analyzed as a result of interaction between the verbal meaning of the source and the conceptual characteristics of the body part. In view of this, an analysis of pain predicates might make a new contribution to the field of crosslinguistic study of body parts conceptualizations (cf. Brown 1976; Andersen 1978; Majid et al. 2006, cf. also a diachronic approach to body part terms within the project LexiType(Dia) [Tübingen University, coordinated by Peter Koch]).

3.7. *Loss of functionality*

Verbs of functionality loss describe a complete or partial loss of functions of body parts, cf. in English *my leg has gone to sleep, his joints had stiffened*. This domain uses a special set of metaphorical sources which also seem to be typologically consistent. Interestingly, these sources are in some way the reverse of the basic pain metaphorical list. For example, “destruction” for PAIN is opposed to “reinforcement” for the LOSS OF FUNCTIONALITY verbs, cf. Spanish *agarrotarse*, lit. ‘to become like a stick’, Hindi *akaṛnā* ‘to harden’:

(30) Spanish

(De tanto estar alerta y al acecho)

al policia se le agarrot-aron
to.DEF.M policeman REFL he.DAT become.like.stick-3PL.PST

las pierna-s.

DEF.F.PL. leg-PL

‘The policeman was so long alert and on the watch that his legs stiffened *(lit. became like a stick)*’.

(31) Hindi

injekṣan lagākar jīb akaṛ gaṛ

injection make tongue harden AUX(PST)

‘After anesthetic the tongue stiffened *(lit. hardened)*’.

“Sound” as a standard source for pain *per se* contrasts with “the loss of sound production or sound reception” in the domain of functionality loss, cf. Russian *nemet* ‘become mute’, German *taub werden* ‘become deaf’:

(32) Russian

ruk-i / nog-i neme-l-i ot

hand-NOM.PL / leg-NOM.PL become.mute.IPFV-PST-PL from

naprjaženi-ja

tension-OBL

‘The hands / legs became unable to feel *(lit. become mute)* (e.g., while holding something heavy)’.⁷

(33) German

Später könn-en die Schmerz-en in Arm und

later can-3PL DEF.NOM.PL pain-PL in arm and

Schulter ausstrahlen, die Finger werd-en taub.

shoulder radiate DEF.NOM.PL finger become-3PL deaf

‘Later, the pain may radiate to the arm or shoulder, the finger become unable to feel *(lit. become deaf)*’.

A similar effect can be observed in the opposition of “motion” as a standard metaphorical source for pain *per se* and “forced immobility” as a metaphorical source for the loss of functionality domain, cf. English *lock*, as in *One day at home, when I bent over to pick up a towel, my back locked and I couldn't stand up*, and Dan-Gweetaa *gā* ‘die’:

- (34) Dan-Gweetaa
 ä kǝ-nù wà gā ä bā
 3SG.NSBJ hand.CMM-PL 3PL.PRF die 3SG.NSBJ on
 ‘His hands became unable to do anything (*lit.* died) (due to fatigue)’.

It is important to note that the predicates of all the taxonomic classes considered can be used to describe unpleasant bodily sensations only as a part of special constructions, structurally different in each language. This fact can be interpreted in terms of the Construction Grammar framework which proposes the idea of construction based meanings (see Fillmore et al. 1988; Goldberg 1995, 2006; cf. the term “coercion” in Partee 1986, 1995, 2007; Jackendoff 1990; see also Michaelis 2004, 2005). If applied to pain constructions, this approach assumes that a predicate can acquire its “pain” meaning only when used in a specific set of morphosyntactic conditions. The morphological and syntactic features of pain constructions are detailed, respectively, in Sections 4 and 5 below.

4. The morphology of metaphorical pain constructions

4.1. Preliminary remarks

The semantic peculiarity of the pain domain defines the grammatical characteristics of its predicates. Semantically, the verbs of general pain are typical representatives of the stative predicate class and, therefore, are likely to be characterized by certain morphological properties (most often restrictions on some grammatical forms, see. e.g., Vendler 1957; Lakoff 1966; Comrie 1976; Dowty 1979).

The predicates that are used to denote pain metaphorically (see Section 3) come from the Vendler’s (1957) classes of activities (cf. sound, motion) and accomplishments (cf. destruction by an instrument or hands), as well as achievements (cf. self-destruction). In order to express pain semantics they can either (1) give an alternative view on the pain event, i.e., conceptualize it differently than as a state, or (2) change their own aspectual class. Both options require special morphological marking. Since, however, pain is more often

conceptualized as a state, case (2) is more frequent. Let us consider both of them in turn.

4.2. Nonstative pain situations

If alternative (1) is used, pain is represented not as a homogeneous state, but as an instantaneous event or iterative process. A momentary sensation of pain can hardly be expressed by the common stative basic pain verb, since perfective (more precisely, punctual) marking joined to a stative verb usually highlights the starting point of a situation and doesn't convert the whole situation into an instantaneous event (cf. Miller 1970; Plungian 2000), cf. Russian *zabolelo* 'it began to ache' derived from *bolelo* 'it ached (Durative)', as in *U menja zabolelo koleno* 'My knee began to ache'. Therefore, momentary sensations of pain tend to be expressed in languages by metaphorically used predicates. According to our data, these could be either verbal nouns in the singular form in a special nominal construction (cf. the English noun *sting* — converted from the verb *sting*, as in *to feel a sting in one's leg*), or verbal forms with semelfactive semantics, cf., e.g., Russian *kol'nulo*, which is derived from the verb *kolot'* 'prick' by adding the semelfactive suffix *-nu-*, as in

- (35) Russian
kol'-nu-l-o v *bok-u*
 prick-SEMELF-PST-N in side-LOC
 (a momentary pain sensation in one's side)

The conceptualization of pain as an iterative process describes pain as a chain of repeated unpleasant sensations (as opposed to a homogeneous state of being ill). This situation type can be expressed either by verbal nouns in the plural form, cf. the German noun *Stich* — derived from the verb *stechen* 'stab', as in (36), or by verbal iterative derivatives (cf. French *picoter*, which is formed from the verb *piquer* 'prick' by adding the suffix *-ot-* conveying diminutive and repetitive meaning, as in (37):

- (36) German
Im *Januar* *wurd-e* *mein-e*
 in.DEF.DAT.M January AUX.PASS.PST-3SG 1SG.POSS-NOM.F
Lunge *auch* *bereits* *ge¹-röntg-t²,* *weil* *ich* *auch*
 lung also already PTCP.PASS^{1,2}-X-ray because I also
Stich-e *in der* *Lunge* *hat-te.*
 stab-PL in DEF.DAT.F lung have.PST-1SG.PST
 'In January my lungs were already X-rayed, because I also had
 recurring pain (*lit.* had stabs) in my lungs'.

- (37) French
j' ai les yeux qui
 I have.1SG.PRS DEF.PL eye.PL REL
pic-ot-ent
 prick-ITER.DIM-3PL.PRS
 (e.g., in case of eyes tired from computer)

4.3. Stativization of source verbs

The second possibility, i.e., adjusting the aspectual characteristics of source verbs with pain semantics, involves “stativization”. Our research data delineates at least four mechanisms for transforming initially dynamic verbs into stative predicates. Two of them produce verbal constructions and the other two form nominal predicates.

Let us start with stativization by means of verbal constructions. Two types observed here include durative and resultative morphological strategies.

4.3.1. *Verbal constructions with durative forms.* The first type can be called durative. We claim that the addition of a morphological marker that gives the durative meaning to a verb can be regarded as a way to modify its semantics in the direction of stativity. Indeed, a marker with durative meaning expresses the idea of duration both in states and processes (cf. Plungian 2000: 300), thus bringing them semantically closer to each other and eliminating the internal structural differences between them.

The prevalence of durative markers (*durative strategy*) is characteristic of Russian, for example. Here pain constructions mostly feature imperfective verbs, cf.

- (38) Russian
v bok-u kol-et | kolo-l-o
 in side-LOC prick.IPFV-3SG.PRS / prick.IPFV-PST-N
 (pain in one’s side, e.g., while running)

Constructions with durative semantics can also be observed in other languages of our sample, see examples from Lithuanian, Hungarian and Georgian:

- (39) Lithuanian
oda deg-a
 skin burn-3SG.PRS
 (unpleasant sensation, e.g., after sunburn)

- (40) Hungarian
csíp a szem-em
 sting.3SG.PRS DEF eye-1SG.POSS
 (sensation in the eyes, e.g., caused by soap)
- (41) Georgian
k'epa-ši m-a-c'veb-a
 nape-LOC 1SG.OBJ-VRS-press-3SG.SBJ.PRS
 (occipital headache, e.g., due to high blood pressure)

We treat examples like (39–41) as representing durative strategy because they refer to a situation in progress. We thus assume that verbal forms may convey durative semantics either through specialized aspectual markers (in those languages that have such markers as is the case in Russian, see [38] above), or (in languages with aspectually polysemous forms) through the context of their use. Note that Examples (39)–(41) feature present tense forms, which strongly favor a durative interpretation.

4.3.2. *Verbal constructions with resultative forms.* This type of verbal pain construction conceptualizes pain states not as durative process, but as the result of a preceding process (*resultative strategy*). Morphologically this perception of the situation is marked by a form expressing resultative or perfective semantics, cf. English *my leg has gone to sleep*, and the following examples:

- (42) Aghul
k'arab-ar uq.u-naa
 bone-PL crash-RES
 (rheumatic pain)
- (43) Ukrainian
vin taky dobre zgolodni-v za
 he indeed very get.hungry-3SG.PST.M during
dorog-u. žyvit stjag-l-o
 journey-ACC stomach.ACC draw.together.PFV-PST-N
 'He got very hungry while he was travelling. He felt pain in his stomach <lit. his stomach has been drawn together>'.

4.3.3. *Verbal constructions: an overview.* The strategy chosen by a given language can be regarded as a general characteristic of its pain constructions. Some languages favor the durative strategy (like Russian), while others give preference to the resultative one (like Aghul). However, the tendency of a particular language to recruit either durative or resultative means of marking is not absolute. The initial semantics of the metaphorically used verbs as well as the characteristics of the situation in general also plays a significant role in the choice of morphological strategy. Thus, the semantics of loss of functionality

(see Section 3.7) can be easily conjoined with the idea of result. Indeed, such situations usually presuppose a definite event in the past that becomes the starting point of a new state, i.e., the lost functionality of the described part of body. Such a structuring of the situation converges with the semantics of resultativeness. Therefore, loss of functionality verbs are usually marked as resultative-perfect, even in such durative-oriented languages (in the pain domain) as Russian, cf.

- (44) Russian
nos *založ-en*
 nose.NOM.M bung.up.PFV-PTCP.PASS.M
 ‘The nose is bunged up’.

On the other hand, verbs originally expressing nontelic actions are normally unsuitable for conveying the idea of a result and follow therefore the durative strategy. Thus, typical nontelic verbs with the basic meanings in the domains of sound (see Section 3.4) or motion (see Section 3.5) don’t have resultative marking in any of the researched languages. Below are two examples of durative forms for verbs belonging to these classes in Aghul, which otherwise uses resultative forms for pain constructions:

- (45) *ze* *k’il* *aldarka-a*
 1SG.POSS head spin-PRS
 ‘My head is spinning’.
- (46) *fun* *raXa-a*
 stomach talk-PRS
 (in case of hunger)⁸

Telic verbs denoting the situations of agentive impact (i.e., verbs of destruction by means of an instrument or hands) attest both durative (see [47–48] as well as [38] above) and resultative (see [49–50]) marking among the sample languages.

- (47) Erzya
m’ešč’i-t’e-nde *r’izne*
 chest-DEF-PART cut.3SG.PRS
 (burning sensation in the chest)
- (48) Polish
łupi-e *go* *w* *skroni-ach*
 split.IPFV-3SG.PRS he.ACC in temple-LOC.PL
 (strong headache in the temple area)
- (49) Aghul
jak-ar *arɕ.u-naa*
 flesh-PL smash-RES
 (muscle aches throughout the body, e.g., when getting a cold)

- (50) Bulgarian
kräst-ät mu se sekna-l
 loins-DEF he.DAT REFL cut.PFV-PST.M
 (sharp back pain, e.g., after bending over)

Thus, the semantic sources of pain metaphors can be arranged along a durative-resultative scale, the two ends of which would be typologically most stable, while the intermediate section would be subject to crosslinguistic variation. As we have already seen, the durative end is occupied by the nontelic predicates with the basic meaning of sound or motion, while at the resultative end there are verbs of blocking, immobilization and some others that lend themselves to the semantics of functionality loss. The zone in between is covered by the verbs of destruction.⁹

Languages differ depending on where they draw a line between their durative and resultative constructions on the scale. In other words, durative languages can be correlated according to how far their durative constructions go into the resultative zone. Likewise, the resultativeness of pain in a language can be assessed according to how far it trespasses into the zone of durativeness. In this sense, Russian turns out to be more durative than Erzya. The only zone in Russian not encompassed by durative marking is that of the loss of functionality. And even inside this zone we observe constructions with imperfect verbs, cf.

- (51) *ruk-a neme-et*
 hand-NOM.F become.numb.IPFV-3SG.PRS
 ‘The hand is becoming numb’.

In Erzya the loss of functionality zone is entirely covered by resultative constructions, and moreover, the resultative constructions are encountered in the domain of verbs of agentive impact, cf.

- (52) *s’ed’ij-s’ s’iz’s’*
 heart-DEF.NOM tear-3SG.PST
 (pain in the heart felt at the moment of speech)

However, most verbs of agentive impact in Erzya prefer durative constructions, cf.

- (53) *p’eki-t’e-nde s’endyr’e*
 stomach-DEF-PART break.3SG.PRS
 (strong stomach ache)

In view of this, Erzya may be considered to be more durative than German. In German, most verbs of agentive impact (‘cut’, ‘drill’, ‘shoot’, ‘tear’) when used in a pain situation do not exhibit durative forms but occur in nominal constructions which we turn to in the next section.

4.3.4. *Nominal constructions.* Nominal constructions are another means of stativization of originally dynamic verbs. Here we can outline two mechanisms: the formation of verbal adjectives (participles) and the use of verbal nouns.

Constructions in which verbal adjectives (participles) serve as attributives of nouns with the meaning of ‘pain’ are characteristic of many languages we have researched, cf. Russian *nojuščaja bol’* ‘nagging pain’, *režuščaja bol’* ‘cutting pain’, *koljuščaja bol’* ‘stabbing pain’; English *burning* / *crushing* / *gnawing* (*pain*); Hungarian *szúró fájdalom* ‘stabbing pain’, *égető fájdalom* ‘burning pain’, *húzó fájdalom* ‘dragging pain’, etc.

Often these constructions function in a language alongside the corresponding verbal ones and are preferentially used in medical discourse (see McGill’s pain questionnaire; Melzack 1975; cf. also Sadovnikova 2002). Yet in many languages we find discrepancies between those verbal lexemes that are able to participate on their own as predicates in pain constructions and those that are used in participial pain constructions. The most interesting examples are verbs that are exclusively used as participial modifiers. As already mentioned, this is the case in German. Here the verbs of instrumental destruction exhibit neither durative nor perfective forms in pain constructions. The only way to “stativize” these verbs is through the formation of participial constructions, cf.:

- (54) *Ich hab-e* *schneid-end-e* *Schmerz-en*
 I have.PRS-1SG.PRS cut-PTCP.ACT-ACC.PL pain-PL
im Bauch.
 in.DEF.DAT.M stomach
 ‘I have cutting pain in the stomach’.

The use of verbal nouns can be regarded as another intrinsic mechanism for verbal stativization.¹⁰ Diachronically, a particular manifestation of this tendency can be seen in the acquisition of terminological status by nominal derivatives from metaphorical pain verbs, cf. Serbian *zujanje* lit. ‘buzzing’ (tinnitus), French *oppression* lit. ‘compression’ (the feeling of constricted breathing), cf. also Russian obsolete *lomota* ‘joint ache’ from *lomat’* lit. ‘break’. Nominalization is especially important in languages in which compound verbs form a significant part of the verbal lexicon. Hindi is just such a case:

- (55) *pair-ō me čubh-an ho rahī hai*
 leg-PL in pierce-NMLZ be AUX(PRS.PROG)
 (sharp pain in legs)

where *čubhan* is a noun derived from the verb *čubhnā* ‘pierce, puncture’. Example (56) represents a basic (nonmetaphoric) pain construction similarly formed with the help of a noun:

- (56) *mere hāth me dard hai*
 1SG.POSS hand in pain be.3SG.PRS
 ‘I feel pain in my hand’.

Note that in Hindi verbal constructions are also encountered in the field of unpleasant bodily sensations. Crucial is the fact that they can include verbs with the initial meaning of sound and movement or self-destruction, not those of physical impact, cf.

- (57) *maiⁿ kām nahīⁿ kar saktā: kān baj*
 I work not do can ears(NOM) ring
rahe haiⁿ
 AUX(PRS.PROG)
 ‘I cannot work, my ears are ringing’.

- (58) *merā sir ghūm rahā hai*
 1SG.POSS head spin AUX(PRS.PROG)
 ‘My head is spinning’.

In this regard, the previously formulated semantic scale is applicable to Hindi as well. Nominalization in Hindi is preferred for dynamic source verbs, i.e., for those verbs which mostly require stativization. This is the very zone in which other languages mostly avoid durative constructions (cf. [54] from German with a participle or [49–50] from Aghul and Bulgarian with resultative forms).

However, it should be pointed out that in this respect the “durative” strategy in the dynamic zone (cf. Examples [38], [40–41], [47–48]) is a case apart. Here the shift of dynamic verbs to the domain of pain is not marked in any exceptional way, as the morphological means used to encode them (i.e., durative forms) are not opposed to the marking of other verbs (like predicates of motion or burning which are normally durative). This implies that the shift of lexical meaning in dynamic predicates should be supported by grammatical means other than morphological ones. And indeed, there are syntactic processes which may also contribute to the lexical shift under discussion. Syntactic processes of this kind are analyzed in the next section.

5. Syntax of metaphorical pain constructions

5.1. Preliminary remarks

A standard pain situation contains several participants (cf. the Perception_body frame in the FrameNet model [<http://framenet.icsi.berkeley.edu/>]):

- (i) the part of one’s body experiencing the pain (BODY_PART),
- (ii) the person experiencing the pain (PERSON), and
- (iii) the cause of the pain (REASON).

Note that the FrameNet model mentions several other semantic roles: MAN-
NER (“type of pain”), DEGREE (“intensity”) and a specification of the partici-
pant “body part” — SUBREGION (a specific area of the body part experi-
encing the pain). However, the syntactic coding of these participants roles is
not significant for the shift from the physical domain to the physiological one.
Thus, in what follows we concentrate on the syntactic marking of BODY_
PART, PERSON and REASON. In Section 5.2 we discuss their coding in con-
structions with semantically nonderived (primary) pain verbs, and 5.3 accounts
for the syntactic processes by means of which these roles are incorporated into
the pattern of secondary pain verbs.

5.2. Syntactic coding for basic pain constructions

As our investigation of the language sample shows, dedicated pain verbs can
occur in different morphosyntactic patterns depending on the way each partici-
pant is conceptualized in a certain pain construction. Thus, the BODY_
PART can be interpreted as the *location* of pain (Example [59]), as a *theme*
(Example [60]), or as a *stimulus* (Example [61]); and, accordingly, it is syntac-
tically marked as (a) locative phrase, (b) subject of an intransitive verb or (c)
subject of a transitive verb, respectively.

(a) **location** → locative phrase, cf.

- (59) Czech
bol-i *mě* *v krk-u*
hurt-3SG.PRS I.ACC in neck-LOC
<lit. ‘It hurts me(ACC) in the neck’>

(b) **theme** → subject of an intransitive verb

- (60) Japanese
sake *no* *sei* *de* *watashi* *wa* *atama* *ga*
alcohol GEN fault INSTR I TOP head NOM
sukoshi *itamu*
a.little hurt.PRS
‘My head hurts a little due to alcohol’.

(c) **stimulus** (= the initiator of the pain situation) → subject of a transitive
verb

- (61) Serbian
bol-i *me* *ruk-a*
hurt-3SG.PRS I.ACC arm-NOM
<lit. ‘My arm hurts me(ACC)’>

The PERSON can be viewed as an *experiencer* of pain (Example [62]), as a *possessor* of a body part (Example [63]) or as a *patient* (Example [61]) of the pain event, and is marked as (a) the external possessor in the Dative case, (b) oblique object or a possessive pronoun or (c) direct object, respectively.

(a) **experiencer** → the external possessor in the Dative case

(62) German

mir *schmerz-t* *der* *Kopf*
 I.DAT hurt-3SG.PRS DEF.NOM.M head
 <lit. 'The head hurts me(DAT)'\>

(b) **possessor** (of a body part) → oblique object or a possessive pronoun

(63) Crimean Tatar

tarla-da *çalış-tan* *bel-im* *ağır-a*
 field-LOC work-ABL loins-1SG.POSS(NOM) hurt-3SG.PRS
 'My back hurts because of working in the field'.

(c) **patient** → direct object, cf. the Example (61) from Serbian.

Finally, the REASON is conceptualized either as a *causer* (Example [64]) or *source* (Example [65]) of the pain situation and is therefore marked as the subject or oblique object, respectively:

(a) **causer** (of the pain situation) → subject, cf.:

(64) French

La *lumière* *me* *fait* *mal* *aux* *yeux*
 DEF.F light I.DAT do.3SG.PRS pain in.DEF.PL eye.PL
 <lit. 'The light does pain to me in the eyes'\>

(b) **source** → oblique object (e.g., a prepositional group),

(65) Aghul

č_oe *haraj-ar.i-qas* *baw.a-n* *k'il* *iīa-a*
 2PL.POSS shouting-PL-POSTEL mother-GEN head hurt-PRS
 <lit. 'Mother's head hurts because of your shouting'\>

The list above covers the possibilities of syntactic coding in the languages of our sample. Within one and the same language a particular participant can have more than one variant of syntactic marking, i.e., several different constructions for the expression of pain can co-exist in one and the same language, and even with one and the same predicate. Moreover, several strategies can simultaneously be implemented in the same construction. Thus, French can combine two strategies for PERSON marking, namely the possessor strategy and the experiencer strategy at the same time:

(66) French

Ma jambe me fait mal
 1SG.POSS.F leg I.DAT do.3SG.PRS pain
 <lit. 'My leg does pain to me'>


5.3. Syntactic coding for metaphoric pain constructions

Verbs used metaphorically are initially characterized by a different set of participants. Consequently, to refer to pain their initial syntactic pattern has to be reorganized so as to fit into the situational structure of pain events. The strategies used depend on whether the source verb is originally intransitive (see Section 5.3.1) or transitive (see Section 5.3.2).

5.3.1. *Intransitive source verbs.* Intransitive predicates (e.g., sound or motion verbs, verbs of nonagentive destruction or burning) provide the most predictable result. Their basic argument structure involves one participant (theme) coded by the subject (X_s) (cf. *the bells are ringing* or *the windmill is spinning*). In reference to pain situations they may be used in personal and in impersonal constructions. In the personal pain construction the syntactic role of the subject may be filled by BODY_PART (BP_s) (cf. *my ears are ringing* or *my head is spinning*). In this case the physical and physiological verb meanings are identical with respect to their basic syntactic argument structure, although the physiological event may be additionally specified by expressing PERSON (DAT/POSS) and REASON (OBL) (cf. Line 1 in Table 1, illustrated by Examples [67] and [68]).

The subject position may also remain unfilled if the impersonal construction is used. In this case the BODY_PART is expressed by a locative group (BP_{LOC}). The PERSON is interpreted as an experiencer and is either marked by the dative case ($PERSON_{DAT}$) or gets a possessive marking ($PERSON_{POSS}$). The REASON is expressed by an indirect object or is not expressed at all, cf. the Line 2 in Table 1 illustrated by (69) and (70). This type of syntactic reorganization of the source verb is very common, since lack of the subject reduces the dynamicity of the event and therefore contributes to the idea of stativization.

Table 1. *Intransitive source verb*

 V_{intr.-physical} (cf. 'sound')			X_s		
	V_{intr.-pain}	(1)	REASON \emptyset /OBL	BP_s	PERSON _{DAT/POSS} / \emptyset
	(2)	REASON \emptyset /OBL		PERSON _{DAT/POSS} / \emptyset	BP_{LOC}

Let us illustrate the constructions in the table with examples:

Construction (1) (personal)

(67) Spanish

Si su frente ard-e de
 if 2SG(FORMAL).POSS forehead burn-3SG.PRS from
fiebre,
 fever

(*puede tomar paracetamol para bajar la temperatura*).

‘If your forehead is burning with fever, you can take paracetamol to reduce fever’.

(68) Georgian

k'uč'i m-a-gineb-s

stomach 1SG.OBJ-VRS-swear / curse-3SG.SBJ.PRS

(*lit.* ‘stomach curses at me’), said of unpleasant sensation in the stomach when one is hungry)

Construction (2) (impersonal)

(69) German

es saus -t mir in den Ohr-en
 it whistle-3SG.PRS I.DAT in DEF.DAT.PL ear-PL
 (unpleasant sensation in the ears, e.g., when feeling dizzy)

(70) Ukrainian

jomu u grud-jax gori-l-o
 he.DAT in chest-LOC.PL burn.IPFV-PST-N


(unpleasant sensation in the chest, e.g., when having a cold)

5.3.2. *Transitive source verbs.* Transitive source verbs show two types of pain constructions in our data: they may form either two-place (Table 2) or one-place pain predicates (Table 3).

Let us start with the first option. If a structure with the basic arguments X_S and Y_O (e.g., verbs of agentive destruction like ‘cut’ or ‘sting’, or verbs of agentive burning) participates in a transitive pain construction the agent may be substituted for by REASON, in which case the BODY_PART is conceptualized as patient (cf. *he pinched the kid* → *the shoes pinched my feet*). The PERSON is easily introduced into this structure marked by DAT or POSS (cf. Line 1 in Table 2 illustrated by Example [71] below). Occasionally BODY_PART becomes an agent affecting PERSON as patient, in which case REASON may be marked by an oblique case or prepositional phrase (cf. Line [2] in Table 2 and Example [72]). Although the source transitive structure both in (71) and (72) does not exhibit any significant transformation, the dynamicity of the event is still reduced due to the inanimacy of the subject noun.

It may be reduced even more if an impersonal construction is used (see Lines [3–4] in Table 2, cf. the discussion of the similar effect for intransitive source verbs in Section 5.3.1). In this case either BODY_PART or PERSON may represent the direct object (patient). If it is BODY_PART, then person is marked by DAT or POSS; if it is PERSON, then BODY_PART is interpreted as location of pain and is marked by a locative group (BP_{Loc}). In both alternatives REASON may be introduced as a circumstantial element (OBL/prepositional phrase), see Table 2.

Table 2. *Transitive source verb with transitive use in pain constructions*

 V_{tr.-physical} cf. <'cut'>		X_s	Y_o		
	V_{tr.-pain}	(1)		REASON_s	BP_o
(2)		REASON ∅/OBL	BP_s	PERSON_o	
(3)		REASON ∅/OBL		BP_o	PERSON _{DAT/POSS/∅}
(4)		REASON ∅/OBL		PERSON_o	BP _{Loc}

Below are some examples from our sample:

Construction (1) (personal):

- (71) Hindi
rassī uⁿgliyoⁿ ko kātī hai
 rope finger.PL ACC cut be.3SG.PRS
 'The rope hurts my fingers'.

Construction (2) (personal):

- (72) Bulgarian
grāb-āt me bod-e
 back-DEF I.ACC prick-3SG.PRS
 (sharp pain in the back)

Construction (3) (impersonal):


- (73) Balkar
bel-im-i tarta-dy
 back-1SG.POSS-ACC pull-PST
 (muscle pain in the back)

Construction (4) (impersonal):

- (74) Serbian
prītsk-a me u grud-ima
 press.IPFV-3SG.PRS I.ACC in chest-LOC
 (unpleasant sensation in the chest, when it feels difficult to breathe)

The most interesting cases of syntactic change in pain constructions concern turning transitive source verbs into intransitive ones (Table 3). Here, the pain construction is either impersonal, when none of the syntactic roles of the source verb are expressed (Line [1] in Table 3, cf. [75]), or else BODY_PART is coded as the main participant of the intransitive verb (subject) and in this case we observe a crucial change of the syntactic structure of the verb (cf. Line [2] in Table 3). Note that this transformation cannot be interpreted as a simple omission of the object (as with two-place predicate like *eat* in *he is eating* ∅). Indeed, no participant of the pain event is omitted here, since all of them are overtly expressed via other syntactic means: PERSON as DAT or POSS, and REASON as OBL (cf. Example [76]).

Table 3. *Transitive source verb with intransitive use in pain constructions*

 V_{tr.-physical} cf. <'cut'>			X_s	Y_o			
	V_{intr.-pain}	(1)	REASON ∅/OBL			PERSON _{DAT/POSS/∅}	BP _{LOC}
	(2)	REASON ∅/OBL	BP_s		PERSON _{DAT/POSS/∅}		

Let us illustrate both constructions with examples:

Construction (1) (impersonal):

(75) German

es beiß-t mir in den Auge-n
 it bite.PRS-3SG.PRS I.DAT in DEF.DAT.PL eye-PL
 (sensation in the eyes, e.g., caused by smoke)

Construction (2) (personal):

(76) Russian

vchera večerom u¹ menja² ochen' bok
 yesterday in.the.evening I.POSS^{1,2} very side.NOM.M
kolo-l
 prick.IPFV-PST.M
 'Last night I got a sharp pain in my side'.

The possibility of construction (2) seems to be the result of the strong syntactic impact of the features of the basic pain verb on secondary verbs of unpleasant physiological sensations. Indeed, in construction (2) the argument structure of the verb *kolo-t* 'prick' copies the one of the verb *bolet'* 'hurt'. Similar effects are found in other languages:

- (77) French
la langue me piqu-e
 DEF.F tongue I.DAT prick-3SG.PRS
 (e.g., from spicy food)
- (78) German
mein-e Auge-n beiß-en
 1SG.POSS-NOM.PL eye-PL bite.PRS-3PL
 (e.g., from smoke)
- (79) Crimean Tatar
buğum-lar-ı qır-a
 joint-PL-3SG.POSS(NOM) scratch-3.PRS
 (rheumatic pain)

6. Theoretical explanation: evolution into predicates of pain

The preceding sections show that semantic shifts into the pain domain necessarily involve more than simply a change in lexical meaning. The evolutionary processes involved may affect different levels of linguistic structure, changing the morphological and syntactic properties of the source verbs. At the same time, the shift into the pain domain is quite nonstandard from a semantic point of view as well.

The theory of semantic change distinguishes two main mechanisms of meaning change: metaphor and metonymy. Both traditional (Ullman 1957, 1962) and recent approaches (Peirsman and Geeraerts 2006a, 2006b; Croft 2006) oppose them as based on relations of similarity (metaphor) and contiguity (metonymy), respectively. However, the examples from pain domain do not show either similarity or contiguity in the strict sense.

A strict similarity between motion or instrumental impact, on the one hand, and a pain event on the other hand cannot be postulated, simply because the former represent activities or accomplishments, while the latter correspond to inner nonobservable states (sensations). That is, they cannot be compared directly to each other as source and target are in prototypical cases of metaphor, cf. running → quick motion, visual/auditory perception → understanding, etc. Classical metaphors bring together like with like, cf. Lakoff and Johnson (1980); Lakoff (1987); Kövecses (2002). In terms of Turner and Fauconnier (1995), it means that there should be a possibility to match two input mental spaces (and two corresponding events), as in Figure 2. In the well-known example of surgery and butchery, “butcher” maps onto “surgeon”; “animal” (cow) maps onto “human being”; “cleaver” maps onto “scalpel”, etc.

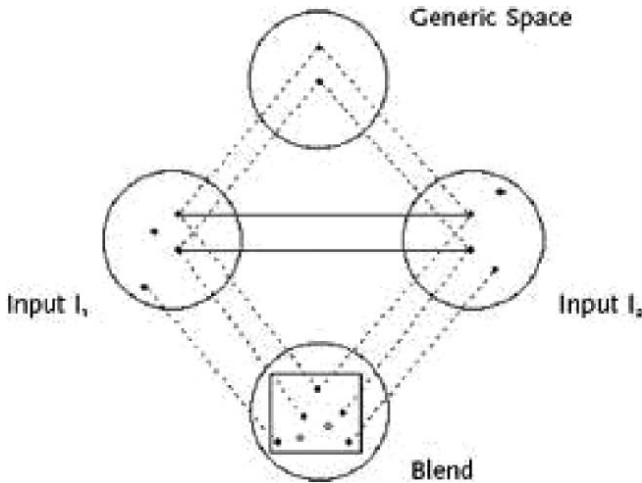


Figure 2. *Metaphor as cognitive mapping between mental spaces*

This interpretation of metaphorical mapping does not entail or require a total reorganization of syntactic structure such as is observed in secondary pain verbs (cf. Section 5). Such syntactic reorganization is a part of metonymic shift, but our data do not fit the classical definition of metonymy either (and as a matter of fact, none of the standard lists of examples of regular metonymic patterning involves pain as a target domain, cf. Apresyan 1974, 1992; Radden and Kövecses 1999; Peirsman and Geeraerts 2006a).

Interestingly, those researchers who address pain language intuitively classify these shifts as metaphoric (cf., e.g., Schott 2004).¹¹ One of the clear reasons for this is the fact that alongside secondary pain verbs, some languages use explicit comparisons, cf. Hindi:

- (80) *mere hāth meⁿ itnā dard hai manoⁿ*
 1SG.POSS hand in such pain be.3SG.PRS like
koī sūī se čubhā rahā ho
 someone needle POSTP prick(PROG.SBJV)
 'I feel the pain in my hand as if someone were pricking it with a
 needle'.

In view of the peculiarities of the semantic shift under examination, we claim that it should be treated as a combination of both mechanisms of meaning change. Hence, we suggest that metaphor and metonymy could represent parts of a general semantic process (cf. Barcelona 2000a, 2000b; Radden 2000; Feyaerts 2000; Dirven 2002). Let us discuss the opposition of metaphor to metonymy in greater detail.

If there is a predicate P and its arguments, then in terms of Construction Grammar (Fillmore et al. 1988; Goldberg 1995, 2006; and others), it represents a construction, each slot of which (i.e., each variable in its structure) has its own set of restrictions on its fillers. Restrictions can be based on various features, including taxonomic categories (in terms of Paducheva 1999, 2004; cf. *domains* in terms of Croft 1993, or *idealized cognitive models* in terms of Lakoff 1987) and their characteristics. For instance, a predicate may require its subject to be animate, cf. RUN, or its object to denote a liquid, cf. DRINK, etc. According to Fillmore's theory, any violation of combinability restrictions implies changes in the semantics of the whole construction. It means that in case of a "wrong" choice of an argument the meaning of the predicate changes. This is just what happens in case of metaphoric shifts. If the animate subject is replaced by an inanimate substance, as in *a boy is running* → *water is running*, or liquid is replaced by an abstract concept (something that can be taken in mentally) as in *drink water* → *drink in learning*, then the predicate meaning changes its taxonomy as well, cf. 'physical activity' (controlled motion) → 'uncontrolled event' (motion of substances); 'consuming food' → 'perception'. This approach is not in conflict with the traditional idea of similarity, because the change of argument follows the very principle of conceptual resemblance. The entities belonging to one taxonomic class are analogized to those of another class, for which reason the target taxonomic class should in some respect be cognitively similar to the source one.

As opposed to metaphor, the mechanism of metonymy is not based on a violation of semantic restrictions, but supposes a shift in the representation pattern of the event, which may entail changes in the syntactic pattern of the predicate. The arguments (some of them at least) change their place in the frame structure up to a total suppression which may be combined with the implementation of a circumstantial participant into the target structure. Thus, for example, the original structure of DRINK requires liquid as its object. But normally liquid requires a special kind of location, namely, its container. In the source frame structure the slots corresponding to liquid and container are tightly connected to each other, and this enables the latter to play the role of direct object instead of the former. In this new pattern, liquid is expressed by a prepositional phrase or it may even not be expressed at all, cf. *he drank a glass (of water)*. Again, this view on metonymy can easily be matched with the traditional idea of contiguity, since all the rearrangements take place within one and the same frame, and all the slots of the frame are by definition contiguous to each other (cf. Kustova 1998; Paducheva 2004; cf. also Radden and Kövecses 1999; Kövecses 2002).

What is crucial for the approach under discussion is the idea of focus shift, cf. similar concepts of "profiling" (Langacker 1987 and his followers) and "highlighting" (Croft 1993; Paducheva 1999; and some others). However,

focus can be shifted not only from one participant to another, but from an event as a whole to its result. The latter case is known in the cognitive tradition as the effect of end-point metonymy which is normally discussed in connection with the treatment of the preposition *over* (Brugman 1981, 1988; Brugman and Lakoff 1988; Lakoff 1987), cf. *walk over the hill and live over the road*. But this instance reveals a much more general principle illustrating the cognitive saliency of result. It is reflected in many well-known linguistic effects including metonymies like PROCESS — RESULT, cf. *Supervise when the **carving**_{process} takes place carefully to make sure an unfortunate incident does not occur* — *A “new” **carving**_{result} of Christ regarded as a lost masterpiece by Michelangelo is shown in Florence*, DIMENSION — DISTANCE, cf. ***high**_{dimension} wall — **high**_{distance} ceiling; **deep**_{dimension} container — **deep**_{distance} layer* (examples from Rakhilina 2000), MOTION — STATE, cf. *we **reached**_{motion} to the shore — his land **reaches**_{state} to the river* (example from Paducheva 2004).

Thus, formally two types of metonymic shifts of a cognitive nature can be distinguished based on the shift of the focus of attention, viz. argument metonymy and resultative (or end-point) metonymy. The latter allows an aspectual restructuralization of an event involving a shift from a dynamic process to its stative result (see the example of *reach* above). This effect resembles that occurring in the observed nontrivial cases of “importing” predicates into the pain domain — mainly because an action in the SOURCE domain yields a state in the TARGET domain (cf. the German verb *beißen* ‘bite’ used as 1) a dynamic predicate: *der Hund beißt seinen Besitzer* ‘the dog is biting its owner’ and 2) a stative predicate: *meine Augen beißen* lit. ‘my eyes bite’, i.e., ‘I have a biting sensation in the eyes’).

At the same time the “end-point” metonymy also normally bears some resemblance to the ‘part/whole’ relation. This concerns telic processes, in which the resultant state is an intrinsic part of the whole situation, as in *to cut the bread* ‘situation as whole’ — *the bread is cut* ‘part of the situation: result’. In our case, however, the state is not a part of the input situation (cf. *j’ai les yeux qui piquent* lit. ‘I have eyes that prick’ is not a natural part of the source physical event *piquer qch.* ‘prick smth.’). It represents not only another actional class, but also another taxonomic one, namely PAIN. Therefore, what we are dealing with here is not just a semantic shift, but a drastic change of the whole input meaning. We suggest the term *re-branding* for it, which reflects the idea of a total reorganization of the input verb.

But what is the reason for this taxonomic change? What links the donor class to the recipient class? Our hypothesis is that this connection is based on an implicature-like relation (cf. Kustova’s 1998 analysis of polysemy relations exhibited by the Russian verb *žat’* ‘press, jam, wring, etc.’; cf. also the analysis of the English verb *hit* given in Riemer 2001). Specifically, the idea of pain arises as a possible result of some activity (cf. such lexical sources as ‘stab’,

‘cut’, ‘press’, ‘burn’, and the like), often involving a direct contact of the human body with various painful instruments or environments (such as needle, knife, fire, etc.). The causal relation between these two situations may be rather stable; hence, a conventionalization of these relations may well be expected. Pain appears to be a highly probable (though not necessary) result of an input action; the relationship is an (implicative) quasi-metonymy, rather than a (resultative) metonymy.

The situation of pain, representing a specific event with its own structure, can therefore be compared to the input situation. The lexical convergence under description is precisely a result of such a comparison. This stage of semantic change can be described as a metaphor, because the convergence is caused by a partial similarity of the two events linked by an implicative relation.

Thus, this instance of *re-branding* (as we have termed it) presupposes a joint interaction of both of the well-established types of regular polysemy, namely, metaphor and metonymy. Metonymy (more precisely, quasi-metonymy, because it is based on a highly probable effect rather than on a necessary result) is, so to speak, responsible for the aspectual shift, whereas metaphor operates by adding a lexical comparison with the input situation. It should be emphasized that the metaphoric transformation is, in a sense, crucial, because native speakers tend to treat this type of semantic change as a metaphor, recurrently using — alongside with polysemy — comparative constructions, cf. the comment on pain language researchers and Example [80] above.

Note that the interaction of metaphor and metonymy discussed here consistently differs from what has previously been examined as a combination of these two semantic shifts. Most of the previous studies on this issue are restricted to cases where metaphor and metonymy take place at successive steps of meaning shift. This succession presumes that a complex shift is preceded by a mere metonymy or metaphor, and that the result of this intermediate stage (i.e., merely metonymic or metaphoric use) remains present in language. The two-step pattern is characteristic of various types of metaphor-metonymy interaction that have been detected in the literature. Let us take a closer look at two of them, which are regarded as major types of this interaction. In the classification developed by Goossens (1990) they are referred to as “metaphor from metonymy” and “metonymy within metaphor”.

“Metaphor from metonymy” is one of the main categories in Goossens’ classification (cf. “metonymic conceptual motivation of metaphor” in Barcelona 2000a, 2000b; “post-metonymy” in Riemer 2002). This type can be exemplified by the expression *beat one’s breast*. The semantic shift here is due to the religious practice of beating one’s breast while confessing one’s sins. Thus, if the expression refers to the situation in which someone is publicly confessing (displaying guilt) and literally beating his or her breast, such a use is metonymic. If, however, no breast beating occurs, the given expression turns out

to be subject to a further semantic shift, which Goossens classifies as metaphorical (for another interpretation see Riemer 2002). But whatever the analysis of the last stage, the most important inference to be drawn from this example is that a complex semantic shift here is preceded by a mere metonymic transfer.

“Metonymy within metaphor” (cf. “the metaphorical conceptual motivation of metonymy” in Barcelona 2000a) can be represented by the example *She caught the Minister's ear and persuaded him to accept her plan*. Here we observe the metaphor ATTENTION is a PHYSICAL ENTITY, and the metonymy EAR for ATTENTION. The metaphor can also operate without metonymy, cf. *She caught the Minister's attention*. It means that in this case, again, we can identify an intermediate stage in meaning shift which this time is represented by a mere metaphor.

As opposed to the cases above, the semantic shift from verbs of physical impact to pain predicates does not pass through any intermediate step, neither mere metaphor, nor mere metonymy. Rather, metonymy and metaphor seem to operate simultaneously in this shift. This is what enables us to claim that the meaning shift which can be observed in pain predicates is distinct from the previously described types of metaphor-metonymy interaction.

Of special interest is the extent to which this semantic process is unique from a theoretical point of view. This phenomenon, though it has escaped the attention of researchers so far, does not seem to be unique to the pain domain. Our research (Rakhilina et al. 2009) has shown that it is present in other lexical domains as well. However, the most interesting case, directly related to our concern, is the well-known transition of lexical units into grammatical ones, usually referred to as *grammaticalization* (Lehmann 1982; Heine et al. 1991; Traugott and Heine 1991; Hopper and Traugott 1993; Bybee et al. 1994; Heine and Kuteva 2002; Dahl 2004; among many others). Actually, grammaticalization is one of the most cogent examples of re-branding, i.e., the entire restructuring of the input unit. It can be seen that the description of re-branding involves many features which are considered, traditionally, as essential attributes of grammaticalization. Specifically, the transition into the grammatical domain equally privileges the role of *constructions* containing the unit in question (Bybee et al. 1994: 11), and the semantic change by grammaticalization equally presupposes *conventionalization of implicatures* and *bleaching* of the specific components of input units (allowing their use in a much wider range of contexts). The data on pain predicates fully conform to these three widely recognized principles of grammaticalization. As shown above, the shift in pain predicates is closely related to the structural features of constructions, it contains an implicature of probable result (end-point quasi-metonymy), and the source meaning (e.g., physical impact) is bleached. Moreover, grammaticalization and re-branding also share a *gradual character* of semantic change, both belonging to what can be called an evolutionary process.

For pain verbs, the gradual character of semantic change is manifested in the following ways. First of all, a considerable variation of syntactic patterns for derived predicates is to be noted. For example, in Russian the impersonal, or subjectless, constructions (of the type *v boku kololo*, lit. ‘in the-side it-pricked’) and the constructions with the overt subject (of the type *bok kolol*, lit. ‘the-side pricked’) are both widely used for describing a stitch feeling. Second, the existing variants have a different degree of acceptability for different verbs. Thus, among Russian constructions with the overt subject, those including the verb *kolot’* ‘prick’ (as *bok kolol* above) are considered more acceptable by most native speakers than those including, for example, the verb *rezat’* ‘cut’ (as **glaza rezali*, lit. ‘the-eyes cut’ in the sense ‘the eyes were smarting’; for these, a subjectless variant of the type *v glazax rezalo*, lit. ‘in the-eyes it-cut’ is clearly preferred). Because it is always a basic (primary) verb like Russian *bolet’* ‘ache, hurt’ which serves as the main morphosyntactic pattern for the derived pain predicates, the most natural way of positioning a derived lexeme on the evolutionary cline is by comparing its grammatical properties with those of the primary verb. From this perspective, Russian *kolot’* can be said to be at a more advanced stage than *rezat’*.

Exactly as in the case of grammaticalization, the advanced stage of re-branding often presupposes a loss of the input lexeme (or of the direct relation to it). In our specific case, it would mean the emergence of a dedicated verb of pain. Such a “new” dedicated pain verb will differ from the basic dedicated pain predicates (like *hurt* in English) primarily in having much stronger combinability restrictions in the domain of body part nouns. In Russian, such predicates can be exemplified by *peršit’*, describing a tickle in the throat (as in *gorlo peršit*, lit. ‘the-throat tickles’) and *ščemit’*, describing a pinching pain in the breast (as in *serdce ščemit*, lit. ‘the-heart pinches’). The former has a remote etymological connection to the noun *perxot’* ‘dandruff, scurf’, but, synchronically, these two words are no longer perceived by native speakers as related. The latter still preserves a physical meaning of “pinching” or “squeezing”, but it is manifested only in prefixal derivatives such as *priščemit’* or *zaščemit’* ‘jam, nip’. Similar examples can be found in Czech, cf. the verb *trnout*, which is etymologically related to the noun *trn* ‘thorn’, but, in modern Czech it cannot itself refer to physical impact by a sharp object. The verb is used to describe toothache caused by hot, cold or sour foods or drinks, as in

- (81) *trn-ou* *mi* *zub-y*
ache-3PL.PRS I.DAT tooth-PL
‘My teeth ache’.

Likewise, the Spanish verb *escocer* goes back to the Latin *excoquo* ‘boil out’, but has lost its original sense of physical heating. In its modern use it denotes the pain of damaged skin or mucosa, cf.:

- (82) *Me escuec-e la garganta y me cuesta*
 I.DAT hurt.PRS-3SG DEF.F.SG throat and I.DAT hard
tragar
 swallow
 ‘My throat hurts and it’s hard for me to swallow’.

In all likelihood, the loss of combinability restrictions and the loss of semantic specificity can yield “true” basic pain predicates, i.e., dedicated predicates of general pain semantics (like *hurt*). The full cycle of this evolution — from one of the possible input verbs (see Section 3) to a basic dedicated pain verb — takes a considerable time span, and, in most cases, we have to draw upon historical and etymological data in order to reconstruct all the details of the process. However, the reliability of these reconstructions is sufficiently corroborated by what we can observe synchronically in the domain of verbal polysy. Thus, for example, we can hypothesize that the German basic pain verb *schmerzen* is a result of such a cycle. Etymologically, it goes back to an Indo-European root **mer-d-* ‘rub, smear’ which is obviously a verb of physical effect. In the dialects of the end of XIX century the cognates of this root are attested only as markers of specific types of pain: Low German *smarten* was used to describe pain caused by blisters or bruises, while High German *schmerzen* / *schmirzen* was used to render a feeling caused by skin-deep injuries (such as slits or burns), cf. Hoffmann (1956). In the modern standard language, however, *schmerzen* can be used for any type of pain and is by far the most basic pain verb.

Schmerzen, then, provides an example of long-term, and syntactically complex change that is typical of the pain domain. It may serve as a good illustration for the re-branding process and its affinity with grammaticalization. Needless to say, lexical re-branding and grammaticalization are obviously distinct with respect to the process output. And yet the very existence of grammaticalization (which is a rather uncommon phenomenon in fact) seems to give evidence for the existence of a much more common process, which involves semantic and structural change of a lexical unit and does not obligatorily give rise to a grammatical meaning.

Thus, observations in the domain of pain predicates allow us to considerably adjust and expand our theoretical views on how the diachronic development of the lexicon can operate, as well as on how word meanings can be integrated into construction meanings.

7. Conclusion

In this paper we have considered, in a typological perspective, the shift from non-pain to pain constructions. We have observed various changes

accompanying this shift. As we have shown, these changes are of several different kinds, coming from the domains of grammatical meaning, part of speech features, argument structure, lexical semantics, etc. The most important conclusion that we can draw from our data is that all these changes do not occur coincidentally but follow a clear cognitive route. Specifically, they aim at restructuring a SOURCE item (its meaning and grammatical properties) in such a way that it matches against the pattern which is characteristic of a TARGET domain. It is thus the “distance” between the source and the target domains that determines the extent to which the item needs to be restructured in the process of semantic shift: the shorter the distance is, the fewer changes are required.

For the pain domain, the most prominent feature to be reproduced in the resulting construction is stativity. Thus, one can consider a shift to the pain domain as an instance of predicate stativization. Therefore, the most distinctive change (re-branding) in this context is manifested by dynamic predicates, which across languages provide a powerful resource for pain verbs (normally referring to a highly intense inner painful sensation). In such cases we have observed interrelated changes in morphology, syntax, and semantics of the source constructions, which give strong evidence for the tight connections between the elements of a linguistic expression. This neatly corresponds to the notion of construction adopted in the framework of Construction Grammar theory.

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Appendix. List of abbreviations

1	first person
2	second person
3	third person
ABL	ablative
ACC	accusative
ACT	active
AUX	auxiliary
BP	body part
CMM	common case
DAT	dative
DEF	definite
DIM	diminutive
DUR	durative
F	feminine
GEN	genitive

IMPF	imperfect
IND	indicative
INDF	indefinite
INSTR	instrumental
INTR	intransitive
IPFV	imperfective
ITER	iterative
LOC	locative
M	masculine
N	neuter
NMLZ	nominalization
NOM	nominative
NSBJ	nonsubject
OBJ	object
OBL	oblique
PART	partitive
PASS	passive
PFV	perfective
PL	plural
POSS	possessive
POSTEL	postelative
POSTP	postposition
PREP	preposition
PRF	perfect
PROG	progressive
PRS	present
PSF	present stem formant
PST	past
PTCP	participle
REFL	reflexive
REL	relative
RES	resultative
SBJ	subject
SBJV	subjunctive
SEMELF	semelfactive
SG	singular
STAT	stative
TOP	topic
TR	transitive
VRS	version

Notes

1. This study was a part of the INTAS project “Core vocabulary in a typological perspective: semantic shifts and form-meaning correlations” (Ref. Nr 05-1000008-7917) and was partly supported by the Russian Foundation for the Humanities and the Ukrainian Academy of Sciences as a joint Russian-Ukrainian project (Nr. 06-04-91403a). Currently, the database is being developed to incorporate the data collected so far (supported by the Russian Foundation for Basic Research, Nr. 09-06-00364-a). We would like to thank Maria Koptjevskaja-Tamm, Martine Vanhove, and two anonymous reviewers for valuable comments and suggestions on earlier drafts of this paper. We are also very grateful to Cliff Goddard for revising the English language of the article. Correspondence address: Tatiana Reznikova, ul. 26 Bakinskix komissarov, d. 3, korp. 1, kv. 318, 119571, Moscow, Russia. E-mail: tanja.reznikova@gmail.com.
2. Pain metaphors in Greek are analyzed in Chapter 8 of Lascaratou (2007), cf. also Lascaratou and Marmaridou: (2005); Marmaridou (2006); for pain metaphoric expressions in German see Overlach (2008); however, the approach to pain metaphors adopted in those studies consistently differs from that we use in this research. For more details, see below.
3. For a preliminary analysis of secondary pain terms in Russian, see Sadovnikova (2002); Bonch-Osmolovskaya et al. (2007).
4. The DWDS corpus (www.dwds.de) is a balanced corpus for the German language of the 20th century containing approximately 100 million running words, constructed at the Berlin-Brandenburg Academy of Sciences.
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6. Here and later in the article, the examples are supplied with glosses, but in most cases not with an idiomatic translation which could hide the metaphoric source specific to the language under discussion. We provide instead information on the extralinguistic situation which may cause the described sensation.
7. Cf. Russian sound verb *gudet* in *nogi gudeli* lit. ‘legs were hooting’ as description of pain, cf. also (22). Such examples form a sort of minimal pair: “sound verb” (pain) — “the loss of sound production or sound reception” (functionality loss).
8. With respect to morphological marking, verbs of burning resemble those of sound and motion, because they are often associated with nontelic situations (cf. ‘the fire is burning’). At the same time, they may also refer to telic events (cf. ‘Paper burns quickly’). Interestingly, this feature of verbs of burning correlates with their ability to take, though rarely, resultative markers, cf. French *J’ai les yeux brûlés* lit. ‘I have the eyes burnt’ (an unpleasant sensation caused by long exposure to sun).
9. A case apart are verbs representing the aspectual class of achievements, i.e., verbs referring to self-destruction. They describe a momentary event, cf. ‘burst’, ‘crack’, ‘explode’, etc., so if used in pain constructions they often get a prospective interpretation. Pain in this case is expressed as a prospect of the self-destruction of the ailing body part in the imminent future (i.e., just about to happen). For instance, in Hindi verbs denoting self-destruction get prospective marking in pain contexts, cf. *dard ke māre merā sir phaTā jā rahā hai* lit. ‘My head

- is going to burst from pain', (said about a strong headache), cf. also an English counterpart: *My head is going to explode*.
10. Note that the verbal noun constructions discussed here are semantically opposed to those considered in 4.2. While the former conceptualize pain as a noninterrupted state, the latter describe it either as a momentary or an iterative event. Though iterative processes are conceptually close to states, they are morphologically distinguished in pain expressions, as iteration is clearly distinguished by using nouns in the plural form (see 36).
 11. See also Kövecses (2008), where it is argued that pain is conceptualized metaphorically in terms of its potential causes, cf. a similar analysis in Lascaratou (2007).

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